22. (Amended) The method as in claim 21 wherein said collective surface shape is formed relative to the shape of a reference surface.

23. (Amended) The method as in claim 22 wherein said reference surface is located on a device to be tested.

24. (Amended) The method as in claim 21 further comprising:

rotating at least one substrate of the plurality of substrates about an axis passing substantially through a plane defined by the contact portions of the plurality of contact elements.

25. (Amended) The method as in claim 21 further comprising:

rotating at least one substrate of the plurality of substrates about an axis substantially perpendicular to a plane by the contact portions of the plurality of contact elements.

26. (Amended) The method as in claim 21 further comprising:

translating at least one substrate of the plurality of substrates substantially along a plane defined by the contact portions of the plurality of contact elements.

27. (Amended) The method as in claim 21 further comprising:

translating at least one substrate of the plurality of substrates substantially perpendicularly to a plane defined by the contact portions of the plurality of contact elements.

Please add the following new claims 28 to 43:

28. (New) A method of adjusting a surface of a substrate, the surface defined by contact portions of a plurality of contact elements coupled to the substrate and the surface having an area that includes a central region and at least one peripheral region, wherein each peripheral region is located further from a center of the substrate than the central region, the method comprising:

mounting the substrate in an approximately planar relationship relative to a board member; and

planarizing the contact portions of the plurality of contact elements on the surface of the mounted substrate to a desired degree of planarity, said planarizing step including:

(a) applying a force to at least one peripheral region of the substrate, the force being directed along a first direction toward the substrate; and

(b) applying an adjustable force to the central region of the substrate to deform the substrate and change the shape of the surface of the substrate from a first shape to a second shape having the desired degree of planarity, whereby, the desired degree of planarity of the contact portions of the plurality of contact elements enables the contact elements to be electrically coupled with a corresponding surface of a device under test.

29. (New) The method of claim 28, wherein said applying step (a) comprises rotating at least one peripheral control member to apply a push force to the respective at least one peripheral region of the substrate.

30. (New) The method of claim 28, wherein said applying step (a) includes manually applying a push force to at least one peripheral region of the substrate.

31. (New) The method of claim 28, wherein said applying step (a) includes automatically applying a push force to at least one peripheral region of the substrate in response to a control signal.

32. (New) The method of claim 28, wherein said applying step (b) comprises rotating a central control member in a first direction to apply the adjustable pull force or in a second direction to apply the adjustable push force to the central region of the substrate.

33. (New) The method of claim 28, wherein said applying step (b) includes manually applying an adjustable pull force or an adjustable push force to the central region of the substrate.

34. (New) The method of claim 28, wherein said applying step (b) includes automatically applying an adjustable pull force or an adjustable push force to the central region of the substrate in response to a control signal.

35. (New) The method of claim 28, wherein said mounting step includes clamping the substrate to a frame, the frame having a relatively fixed orientation with respect to the board member.

36. (New) The method of claim 28, wherein said applying step (a) and said applying step (b) are performed independently, whereby a multi-point adjustment of the degree of planarity of the substrate to match the surface of the device under test can be made.

37. (New) The method of claim 28, further comprising:

rotating the substrate about an axis passing substantially through a plane defined by the contact portions of the plurality of contact elements.

38. (New) The method of claim 28, wherein said device under test is one of a semiconductor wafer, a printed wiring substrate, a component of a printed wiring substrate, and a semiconductor device.

39. (New) The method of claim 28, wherein the substrate is one of a ceramic substrate, an organic substrate, a silicon wafer, and a metallic substrate.

40. (New) The method of claim 28, further comprising electrically coupling the plurality of contact elements to an automated test system.

41. (New) The method of claim 28, further comprising tilting the substrate to facilitate forming said second shape relative to the shape of said reference surface.

42. (New) A method of adjusting a surface of a substrate, the surface defined by contact portions of a plurality of contact elements coupled to the substrate and the surface having an area that includes a central region and at least one peripheral region, wherein each peripheral region is located further from a center of the substrate than the central region, the method comprising:

mounting the substrate in an approximately planar relationship relative to a board member; and

planarizing the contact portions of the plurality of contact elements on the surface of the mounted substrate to a desired degree of planarity, said planarizing step including applying an adjustable force to the central region of the substrate to deform the substrate and change the shape of the surface of the substrate from a first shape to a second shape having the desired degree of planarity, whereby, the desired degree of planarity of the contact portions of the plurality of contact elements enables the contact elements to be electrically coupled with a corresponding reference surface of a device under test.

43. (New) A method of adjusting surfaces of a plurality of substrates, each surface defined by contact portions of a plurality of contact elements coupled to the respective substrate, and each surface having an area that includes a central region and at least one peripheral region, wherein each peripheral region is located further from a center of the respective substrate than the central region, the method comprising:

mounting the plurality of substrates relative to a board member; and

for each substrate, planarizing the contact portions of the plurality of contact elements on the surface of the respective mounted substrate to a desired degree of planarity, said planarizing step including applying an adjustable force to the central region of the respective substrate to deform the substrate and change the shape of the surface of the substrate from a first shape to a second shape having the desired degree of planarity, whereby, the desired degree of planarity of the contact portions of the plurality of contact elements enables the contact elements to be electrically coupled with a corresponding reference surface of one or more devices under test.

In the Abstract:

Please substitute the following abstract for the pending abstract:

Methods for planarizing a substrate in a probe card assembly. One method adjusts a surface of a substrate. The method includes mounting the substrate in an approximately planar relationship relative to a board member (e.g., a printed wiring board, a printed circuit board, etc.), and planarizing the contact portions of the plurality of contact elements on the surface of the mounted substrate to a desired degree of planarity. The planarizing step includes applying an adjustable force, such as, an adjustable pull force or an adjustable push force, to a central region of the substrate to deform the substrate and change the shape of the surface of the substrate from a first shape to a second shape having the desired degree of planarity.